What is claimed is:

1. A method of separating components of a plurality of subject materials in a microfluidic system, the method comprising:

flowing a first fluid comprising a series of a plurality of subject materials through a first microchannel to a separation channel by applying pressure to the first fluid wherein the pressure is applied to the first fluid by a pressure source external to the first microchannel; and

applying an electrophoretic force to the first fluid to introduce individual ones of the plurality of subject materials into the separation channel, and to separate each of the plurality of subject materials into its respective sample components.

2. The method of claim 1, wherein the first microchannel is present in a body structure, wherein the pressure is applied to the fluid by a micropump present in the body structure.

3. The method of claim 1, wherein at least one of the plurality of subject materials comprises one or more of: a nucleic acid, a chemical compound, a mixture of chemical compounds, a polysaccharide, a peptide, a protein, and a biological extract.

4. The method of claim 1, wherein each of the plurality of subject materials is separated into one or more components in the separation channel by the application of an electrophoretic force.

5. The method of claim 1, wherein each of the plurality of subject materials comprises one or more fluorescent labeled species.

6. The method of claim 1, further comprising the step of detecting the respective sample components of each of the plurality of subject materials.

7. The method of claim 6, wherein the detecting is performed with a detector mounted proximal to the separation channel.

8. The method of claim 7, the detector comprising one or more of: a light source, a lens, an optical filter, a band pass filter, and a photoreceptor.

9. The method of claim 6, wherein detecting the sample components comprises analyzing signal frequency from the detector.

10. A device for separating components of a fluid, the device comprising:

a microfluidic device comprising a body structure comprising at least first and second intersecting microchannels fabricated therein;

a pressure source fluidly coupled to the first microchannel; and

a voltage or current controller operably coupled to the second microchannel;

wherein the first microchannel is fluidly coupled to at least one source of a plurality of different subject materials.

11. The device of claim 10, wherein the pressure source is external to the body structure.

12. The device of claim 10, wherein the pressure source is a micropump in the body structure.

13. The device of claim 10, wherein the voltage or current controller is coupled to the second microchannel via electrodes positioned in one or more reservoir, which reservoir is fluidly coupled to the second microchannel.

14. The device of claim 10, wherein the voltage or current controller comprises a voltage controller that provides selectable voltage levels.

15. The device of claim 10, wherein the device comprises reservoirs at termini of each of the at least two channels.

16. The device of claim 15, wherein the voltage or current controller comprises a voltage controller that provides selectable voltage levels to more than one of the reservoirs.

17. The device of claim 10, wherein the second microchannel comprises reservoirs at termini of the second microchannel.

18. The device of claim 17, comprising one or more electrodes in one or more of the reservoirs.

19. The device of claim 10, further comprising a detector mounted proximal to the second microchannel.

20. The device of claim 19, comprising one or more of: a light source, a lens, an optical filter, a band pass filter, and a photoreceptor.

21. The device of claim 19, further comprising a frequency analyzer coupled to the detector.

22. The device of claim 21, wherein the frequency analyzer breaks the electrical signals into their component frequencies.

23. The device of claim 10, wherein the first microchannel is fluidly coupled to sources of a plurality of different subject materials through an electropipettor.

24. The device of claim 10, the first microchannel is fluidly coupled to a plurality of reservoirs, each of which contains one of the plurality of different subject materials.